What is claimed is:

1. A method of forming a composite material comprising:

combining a reinforcement material which includes carbon-containing fibers with a carbonizable matrix material to form a mixture;

heating the mixture to a sufficient temperature to melt at least a portion of the matrix material, the step of heating including:

applying an electric current to the mixture to generate heat within the mixture;

and

while heating the mixture, applying a pressure of at least 35 kg/cm^2 to the mixture to form a compressed composite material

increasing the density of the compressed composite by introducing a carbonizable material into voids in the compressed composite and then baking the compressed composite to achieve a density of at least about 1.30 g/cm^3; and

impregnating the compressed composite, having a density of at least about 1.30 g/cm^3, with a treating component.

2. The method of claim 1, further comprising:

graphitizing the compressed composite having a density of at least about 1.30 g/cm^3 in an inert atmosphere to a final temperature of at least 2000°C prior to said impregnation.

3. The method of claim 1 wherein said treating component comprises at least one of a metal, a thermosettable resin, and combinations thereof.

4. The method of claim 3 wherein said metal comprises at least one of aluminum, copper, boron, and combinations thereof.

5. The method according to claim 3 wherein said thermosettable resin comprises phenolic resins, furan derived resins, epoxy resins, polyimides, cyanate esters, and combinations thereof.

6. The method according to claim 5 further comprising curing said thermosettable resin.

7. The method according to claim 1 wherein said compressed composite, having a density of at least about 1.45 g/cm^3 comprises at least one friction additive.

8. The method according to claim 1 wherein said impregnation comprises subjecting said compressed composite, having a density of at least about 1.45 g/cm^3 to vacuum.

9. The method according to claim 1 wherein said treating component comprises a thermosettable resin.

10. The method according to claim 1 further comprising heating treating said compressed composite, having a density of at least about 1.45 g/cm^3, to a temperature greater than the highest use temperature of said composite material.

11. A vehicle friction brake assembly comprising:

a friction element having at least a cast iron surface which rotates with a wheel of a vehicle; and

a braking element having a surface aligned to movably engage said cast iron surface of said friction element, wherein at least said surface of said braking element comprises a carbon/carbon composite impregnated with a treating component.

12. The vehicle friction brake assembly according to claim 11 wherein said surface further comprises a friction additive.

13. The vehicle friction brake assembly according to claim 12 wherein a concentration of said friction additive through a thickness of said surface comprises substantially uniform.

14. The vehicle friction brake assembly according to claim 11 wherein said treating component comprises at least one of a metal, a thermosett material, and combinations thereof.

15. The vehicle friction brake assembly according to claim 11 wherein said friction element comprises a brake drum or a brake rotor.

16. The vehicle friction brake assembly according to claim 11 wherein said braking element comprises a brake pad.

17. The vehicle friction brake assembly according to claim 11 wherein said treating component comprises a thermosett material.

18. A method of making a vehicle friction brake assembly comprising:

rotatably attaching a friction element comprising a cast iron surface onto a vehicle; and

aligning a braking element to movably engage said friction element, said braking element comprising a surface comprised of a carbon/carbon composite and a treating component, said surface of said braking element aligned to engage said cast iron surface.

19. The method according to claim 18, wherein said treating component comprises at least one of a thermosett material, a metal, a metal alloy, and combinations thereof.

20. The method according to claim 18, wherein said composite further comprise a friction additive.